



**Qinghai Province Farming and Pasturing Area
Electrization Develop Programming**

1. Actuality of electricity

Qinghai province is located at north-east part of the Qinghai-Tibet Tableland. Its acreage is 720000 km², average altitude is above 3000m, population is 5.1 million. There are 42 counties, 437 towns, 4108 villages and the farmers and the herdsmen are 649900 houses in Qinghai province. Now the electrify can look at next table. By the now there are 1 county, 5 centralize counties, 94 towns, 774 villages and 101000 houses about 580000 farmers and the herdsmen without electricity. On the side, there are 100000 houses about 500000 farmers and the herdsmen are seasonal power supplied.

Actuality of electricity

	County	Town	Village	Farmer and the herdsman house
Electrify	99.62%	78.49%	81.16%	84.58%

Electroless population in Qinghai province

	County	Town	Village	Farmer & herdsman house	Population
Total in Qinghai	42	437	4108	649900	5030000
electroless	1	94	774	101000	585000
short				100000	500000
Slove by PV and wind energy		41	500	150000	870000

They are living at the remote places those big areas, less people, traffic discommodity and foul weather. It is very difficult to solve the problem of electricity by general energy. But the resources of solar energy and wind energy in that area are in abundance. The radiant intensity is 6500~7600MJ/m² • a and the peak hours is above 3600h annual. More than 80% part of the Qinghai province, the average wind speed is above 3m/s annual and the availability hour is above 3000h. Based on the rule of adjusting measures to local conditions, we can solve the based problem of electricity of at least 41 counties, 500 villages and 150000 houses about 750000 people, by using the solar energy and the wind energy.

2. Target

2.1. Firstly target

In 2000~2005, we are going to striking up the steady channel of investment, system of training and the network of selling and servicing. We are going to solve the based problem of electricity of at least 41 counties, 100 villages and 100000 houses



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about 750000 people, through using the solar energy and the wind energy and everybody can hold 50W electricity averagely.

2.2. Secondly target

In 2005~2010, more to solve all of problem of electricity through the general adoption of the market principle and everybody can hold 100W electricity averagely.

3. Advantage

- The renewable energy generate electricity product, especially the small SHS are could buy in marketing in Qinghai province. The local governments and the local people in the areas that without electricity are identify with small SHS. The saleroom of small SHS is above 30million Yuan(RMB) in 1999.
- We have installed 8 PV power stations and 8 wind-PV hybrid systems in counties in Qinghai province by the end of 1999. They are running well and the results of demonstrations are in evidence.
- In Qinghai province, we have a seasoned technology team that they have experience long time to researching, developing and extending the generate electricity products of solar energy and wind energy.
- The network of selling and servicing has in rudiment.
- The Qinghai province is located at the middle of the West Part of China. The effects of the project carrying into execution, the project of demonstration and selling the renewable product are in evidence to the provinces and municipalities they are around the Qinghai province.

4. The planning of financing

For the first target of Qinghai Province Farming and Pasturing Area Electrization Develop Programming, it need financing 2087.284 million Yuan(RMB). The financing is through the market economy, through kinds of channels, mainly payment users themselves.

- There 7.31 million Yuan (RMB) are using in training, build up the sale and service network and also for the assure fund.
- The mainly users of the PV power stations and the Wind-PV hybrid systems in villages are the local government and their units, mostly for the benefit of society and the result of demonstration. It is very difficult to take back the cost in short time if through the market economy. That will cost 46.92 million Yuan (RMB). The 20% is 9.4 million Yuan from the nation government allowance, it will give year by year, to lighten the press of financing. At the same time, the unit of owner is going to labour for the long term loan from the government and the organic overseas, and return by finance of Qinghai province year by year. The unit of owneris answered for the business of asset, accepting the charge of electricity, achieve the aim of defending , increment , maintenance and mangment for long term.



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Bankroll requirement and resource (Ten thousand Yuan)

N o.	List	Invest- ment	Bankroll resource					
			Govern- ment imburse	Local government Finance	County self- financing	User self- financing	Owner self- financing	Benefici- ary self- financing
1.	Training	86.4	49	20				17.4
2.	Sale and service net	350	282	50	14		40	
3.	Build power station in town	4692	940	3000	282	70	400	
4.	Popularize SHS	203000				203000		
5	Assure fund	600	400	200				
	Total	208728.4	1671	3270	296	203070	440	17.4

5. Information of the research institute of the project implement

The Qinghai Province New Energy Research Institute, it has researching department, production department and management department. It is a model of institute of development. It is mainly researching and development the product of renewable energy and the equipment of saving energy. My institute assume the design of new energy system and install it. In nearly 16 years after my institute came into existence, we have got science and technology achievement in Qinghai province more than 30 terms, 25 national patents, and finish every kinds of science and technology projects more than 140 terms.

Qinghai Solar Energy electric power Ltd. is the holding company of the Qinghai Province New Energy Research Institute. It is the first the science and technology company that belong to nongovernmental business in Qinghai province, it specialization is producing the SHS. It can product 20000 sets of SHS a year. Our products except get hold of the marketing in our province, also sell to the provinces and municipalities around us , and also expert to overseas. By the now , we are the biggest SHS manufacturer in CHINA.

We have installed 8 PV power stations and 8 wind-PV hybrid systems in counties in Qinghai province by the end of 1999.

PV Power Station in Qinghai Province

No.	Address	PV Panel Wp	Inverter VA	Install time and carry out unit			
1.	Hema town, Tianjun county Haixi canton	420	300×2	1990.9	Qinghai	New	Energy
2.	Zhouqiong town, Tianjun county Haixi canton	504	500×2	1991.9	Qinghai	New	Energy
3.	Qiuzhi town, Quma county, Yushu canton	544	1000	1993.5	Qinghai	New	Energy
4.	Wangjia town, Zeku	1088	1000+500	1993.7	Qinghai	New	Energy



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	county, Huangnan canton			Research Institute
5.	Shinaihai town, Gonghe canon, Hannan canton	4850	5000	1993.9 Qinghai New Energy Research Institute
6.	Shengge town, Tianjun county, Haixi canton	7200	15000	1996.7 Qinghai New Energy Research Institute
7.	Suli town, Tianjun county, Haixi canton	7200	15000	1997.10 Qinghai New Energy Research Institute
8.	Haxiu town, Yushu county, Yushu canton	3000	3000×2	1999.7 Qinghai New Energy Research Institute & Qinghai Solar Energy electric power Ltd.

Wind-PV Hybrid System in Qinghai Province

No.	Address	PV Panel Wp	Wind Turbine W	Install time and carry out unit
1.	Xiuma town, Tongde county, Hanan canton	216	600	1997.8 Qinghai New Energy Research Institute
2.	He town, Tianjun county, Haixi canton	300	300	1997.10 Qinghai New Energy Research Institute
3.	Kekexili town, Qilian county, Haibei canton	100	300	1998.5 Qinghai New Energy Research Institute
4.	Bailong school, Xinghai county, Hainan canton	100	300	1998.6 Qinghai New Energy Research Institute
5.	Clinic, Ningxia Village, Guangcha county, Haibei canton	100	300	1998.6 Qinghai New Energy Research Institute
6.	Kekexili Suonandajie conservancy district	200	600	1998.8 Qinghai New Energy Research Institute
7.	TV station of Hejia town, Dulan county, Haixi Canton	400	1200	1998.12 Qinghai New Energy Research Institute
8.	Jielong town, Yushu county, Yushu canton	3000	1500	1999.7 Qinghai New Energy Research Institute & Qinghai Solar Energy electric power Ltd.